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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/789,055	02/27/2004	Min Ho Jung	30205/37328A	9165

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EXAMINER	
LEE, SIN J	

ART UNIT	PAPER NUMBER
1752	

DATE MAILED: 07/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/789,055	JUNG ET AL.	
	Examiner	Art Unit	
	Sin J. Lee	1752	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 February 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *13-16 and 21-28* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-15,21 and 24-28* is/are rejected.

7)☒ Claim(s) *16,22 and 23* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *27 February 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☒ Certified copies of the priority documents have been received in Application No. 09/878,803.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

S.J.L.

Attachment(s)

1) ■ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *6/4/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

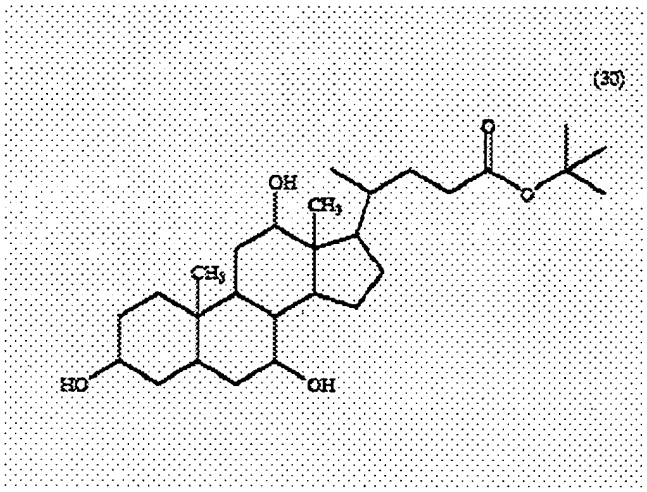
Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 13-15, 21, and 24-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kajita et al (US 6,180,316 B1) in view of applicants' admitted prior art (pg.1 lines 12-26 of present specification).

Kajita teaches a resist composition suitable for KrF excimer laser, exhibiting high transparency to radiation, superior dry-etching resistance, high resolution, and an excellent pattern configuration and sensitivity (see col.2, lines 60-67). Specifically, in Example 24, Kajita teaches a composition containing a copolymer, two photoacid generators (one of which is triphenylsulfonium trifluoromethanesulfonate), an alicyclic compound (C-3) which structure is shown below and a solvent which is ethyl 2-hydroxypropionate (see Table 1, col.48, lines 50-65, col.49, line 34, and Synthesis Example 17):



The compound (C-3) meets Kajita's generic formula (5) shown in col.4, lines 17-36. Kajita teaches the equivalence of –OH groups and a H atom for R^6 and R^7 in his formula (5). Kajita also teaches the equivalence of –OH group and an alkyl carbonyloxy group having 2 carbon atoms (-O-C(=O)-CH_3) for R^5 in his formula (5). Therefore, based on Kajita's teaching, it would have been obvious to one skilled in the art to replace those two -OH groups (in R^6 and R^7 positions) in Kajita's compound (C-3) with H atoms and replace the -OH group (in R^5 position) in Kajita's compound (C-3) with -O-C(=O)-CH_3 with a reasonable expectation of obtaining a resist composition suitable for KrF excimer laser, exhibiting high transparency to radiation, superior dry-etching resistance, high resolution, and an excellent pattern configuration and sensitivity. Therefore, Kajita' teaching renders obvious present compound of Formula 2 of claim 21.

Kajita prepares a resist pattern from his composition by applying his resin composition onto a silicon wafer, imagewise exposing to radiation such as KrF excimer laser, and then developing the exposed areas on the resist film (see col.23, lines 18-28, lines 48-49). Therefore, Kajita teaches present invention of claim 1 except for the

present resist flow process. Present specification, pg.1, lines 14-26 states that resist flow is a processing technology for forming a fine contact hole which exceeds the resolution of the exposing device. It also states that the resist flow process involves an exposure process and a development process and then heating the photoresist to a temperature higher than the glass transition temperature of the photoresist, which causes the photoresist to flow until a fine contact hole necessary for the integration process is obtained. Applicants also state that most of the KrF resist can be flow processed. Since Kajita's composition is a KrF resist, and since Kajita states that his resist composition exhibits high resolution and an excellent pattern configuration, it would have been obvious to one skilled in the art to use Kajita's photoresist in the art-known resist flow technology in order to form a fine contact hole which exhibits high resolution and an excellent pattern configuration. Therefore, Kajita in view of applicants' admitted prior art would render obvious present inventions of claims 13-15, 21, and 25.

With respect to present claim 24, Kajita's Example 24 uses 20 parts by weight of the compound C-3 for 80 parts by weight of the copolymer, which gives 25% by weight of the compound. Thus, Kajita in view of applicants' admitted prior art would render obvious present invention of claim 24.

With respect to present claim 26, Kajita's Example 24 uses 2.4 parts by weight of the photoacid generators for 80 parts by weight of the copolymer, which gives 3% by weight of the photoacid generators. Thus, Kajita in view of applicants' admitted prior art would render obvious present invention of claim 26.

With respect to present claim 27, Kajita teaches the equivalence of ethyl 2-hydroxypropionate and propylene glycol monomethyl ether acetate as his solvent. Therefore, it would have been obvious to one skilled in the art to use propylene glycol monomethyl ether acetate as Kajita's solvent in his Example 24. Thus, Kajita in view of applicants' admitted prior art would render obvious present invention of claim 27.

With respect to present claim 28, Kajita's Example 24 uses 533 parts by weight of the solvent for 80 parts by weight of the copolymer, which gives 666% by weight of the solvent. Thus, Kajita in view of applicants' admitted prior art would render obvious present invention of claim 28.

Allowable Subject Matter

3. Claims 16, 22, and 23 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Kajita does not teach or suggest present temperature range of claim 16 for the resist flow process. Kajita does not teach or suggest present photoresist polymers of claims 22 and 23.

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sin J. Lee whose telephone number is 571-272-1333. The examiner can normally be reached on Monday-Friday from 9:00 am EST to 5:30 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cynthia Kelly, can be reached on 571-272-1526. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

S. Lee
July 10, 2005

SIN LEE
PRIMARY EXAMINER